

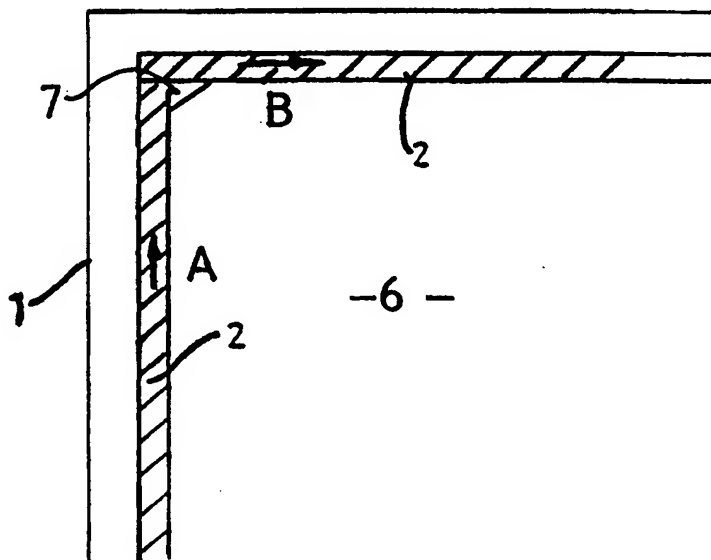


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(21) International Application Number: PCT/NZ99/00035 (22) International Filing Date: 24 March 1999 (24.03.99) (30) Priority Data: 330040 24 March 1998 (24.03.98) NZ (71) Applicant (for all designated States except US): MAGICSEAL (NZ) LTD. [NZ/NZ]; 10d Sheffield Crescent, Christchurch (NZ). (72) Inventor; and (75) Inventor/Applicant (for US only): BUNTING, Trevor, James [NZ/NZ]; 33 Rembrandt Place, Christchurch (NZ). (74) Agent: LEWIS, Mardi, Joan; James & Wells, P.O. Box 2201, Christchurch (NZ).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>

(54) Title: A METHOD OF CONSTRUCTION OF REMOVABLE SCREEN**(57) Abstract**

A method of constructing a removable screen (6) for a window or door frame (1) is disclosed. The method permits the construction to be completed in one trip and on site. Magnetic frametape (2) is sealed to the frame (1). The screen (6) includes magnetic screentape (3), mesh (4) and finishing tape (5). Aesthetically pleasing corner pieces (7) can be added under the finishing tape (5) or on top of the finishing tape (5). The mesh (4) can be selected from a large range of materials, including an insect mesh screen, a clear or opaque plastic film, and an acrylic screen.



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TITLE: A METHOD OF CONSTRUCTION OF REMOVABLE SCREEN**TECHNICAL FIELD**

The invention relates to the installation of a window or door screen with even tension on the mesh or screen mesh.

5

BACKGROUND ART

At present screens such as insect or shade screens are manufactured in a variety of processes. An example of screen is that described in New Zealand Patent No. 226719. A problem with the manufacture of this type of screen is the maintenance of even tension on the screen when building the screen.

10

A further problem that has been shown with the screen of No. 226719 is that the screen must be built off-site, requiring two visits to the site at which the screen is to be installed. The first trip is necessary for measuring up the window or door on which the screen is to be placed, with the second visit being to install the screen.

For the purpose of this specification, the term 'frame' is used to refer to a door frame, window frame, or frame surrounding any portal through an interior or exterior wall.

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An object of the invention is therefore to provide a method of applying tension to a screen during installation. A further object of the invention is to provide a method for in situ installation, or to provide a useful alternative to presently available methods of installation of screens.

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DISCLOSURE OF INVENTION

The present invention provides a method of constructing and installing a screen with even tension, said method including the steps of:

25

thoroughly cleaning and drying a frame to which the screen is to be fitted;

cutting frametape to the required length;

fixing around the perimeter of the cleaned frame the frametape under uniform pressure; said frametape being magnetised and applied with a pre-determined direction of polarity;

30

- cutting screentape to the required length;
- applying magnetised screentape with release tape to the frametape with the magnetic polarity in a pre-determined direction;
- cutting screen mesh to roughly the size required for the screen;
- 5 removing release liner from the pre-adhesived screentape;
- holding the screen mesh over the frame with light tension applied to the sides and pressing the edges to the exposed adhesive on the screentape whilst maintaining said tension;
- applying further tension to ensure the screen mesh is firm and taut;
- 10 laying a non-metallic ruler on the screen mesh and trimming off any surplus screen mesh on all sides;
- cutting pre-adhesived finishing tape to overlap the screentape;
- removing the release liner from the finishing tape and pressing the finishing tape onto the exposed screen mesh and screentape;
- 15 applying pressure to the finishing tape using a pressure tool; and
- fixing corner pieces to said screentape at the corner.

Preferably, if the screen is to be a removable screen, the method further includes:

- releasing the magnetic attraction of the screentape and the frametape to remove the screen from the frame; and
- 20 inserting releasably securable retaining means between the screen and the frame; and
- refitting the screen to the frame.

Preferably the screen mesh is a standard insect screen mesh but may also include other appropriate flexible screen materials (for example, clear plastic).

25

BRIEF DESCRIPTION OF DRAWINGS

By way of example only, preferred embodiments of the present invention are described in detail with reference to the drawings accompanying the provisional specification, in which:-

Fig. 1 shows a front view of a corner of a window under preparation for the application of a screen;

Fig. 2 shows a front view similar to that in Fig. 1 of a nearly completed screen; and

5 Fig. 3 shows a cross section through the screen shown in Fig. 2.

BEST MODES FOR CARRYING OUT THE INVENTION

Referring to the drawings, a first preferred embodiment of a screen 6 is obtained by the following method: the frame 1 is thoroughly cleaned and dried.

10 Frametape 2 is fixed flush around the interior edge of the cleaned frame 1, starting with the one side, and proceeding around the frame 1. The frametape 2, being magnetised on one side, and pre-adhesived on the other side, with a release liner (not shown) concealing the adhesive until such time as it is to be applied, must be oriented with a pre-determined magnetic polarity, as indicated
15 by arrows (A, B) in Fig. 1. Pressure is then applied to the frametape 2 to adhere the frametape of the frame.

20 Screentape 3, being magnetised on one side, and pre-adhesived on the other side, with a release liner concealing the adhesive until such time as it is to be applied, is cut to length and laid on top of the frame 1 and frametape 2 with a pre-determined magnetic polarity corresponding with arrows (A, B) of the frametape 2. Thus the frametape 2 and screentape 3 engage magnetically.

25 Mesh 4 is then cut roughly to size and held up over the frame 1. The release liner (not shown) on the screentape 3 is removed to expose the adhesive. One edge of the mesh 4 is pressed onto one side of the pre-adhesived screentape 3. The mesh 4 is then lightly stretched and pressed against the remaining sides. Thus the approximate size of the mesh 4 is pressed onto the frame 1, over the screentape 3. Light tension is then applied to the mesh 4 so that the mesh 4 is taut.

30 A non-metallic ruler (not shown) is laid on the screentape 3 and any surplus mesh 4 is trimmed off the exterior edge of the frame 1. Preferably the ruler is made of silicon.

A pre-adhesived finishing tape 5 is cut to a length so as to overlap the screentape 3 or to butt-joint with finishing tape 5 overlapping other sides of the screentape 3.

The release tape (not shown) on the finishing tape 5 is removed and the finishing tape 5 is pressed onto the exposed mesh 4 and screentape 3.

Pressure is then applied using a pressure tool (not shown). Examples of such pressure tools, apart from manual, could include a long flat spatula, or similar
5 putty knife, etc. The corners are fixed with triangular or the like corner pieces 7. The corner pieces 7, for aesthetic purposes, can be inset on top of finishing tape 5 or immediately on top of the mesh 4, as the screen 6 is built. The corner pieces 7 can be of an appropriately contrasting colour to the material of the screen 6, or of the same colour, or other aesthetically pleasing colour. The
10 corner pieces 7 can, if so desired, have an aesthetically pleasing shape.

In a second preferred embodiment of the present invention, the screen 6 is then carefully removed by overcoming the magnetic attraction between the frametape 2 and screentape 3. Retaining means (of known type) such as hinges are installed around one side of the frametape 2 to releasably secure the screen 6.

15 It will be appreciated that such retaining means (not shown) can be added to the screen 6 to allow the screen 6 to be partially displaced with ease; also such means can permit partial removal of the screen 6 for entrance and egress of animals.

In a third preferred embodiment of the present invention, re-sealable hook and
20 loop means (of known type) replaces frametape 2 and screentape 3. Mesh 4 and finishing tape 5 are secured in the manner described above.

In a fourth preferred embodiment of the present invention, one side of the screen 6 and part of each adjacent side are semi-permanently secured by some other means such as screw fasteners, loop and hook means, a protruding plastic or
25 aluminium keeper, or some combination of these. The remaining edges of the screen 6 are attached to the frame 1 magnetically as described above. The screen 6 can be removed from the screen on all but the but the semi-permanently secured side. Hinge means such as inserts of butyl rubber are inserted in the place of the screentape 3 between the semi-permanently secured section of the
30 screen 6 and the magnetically fastened section. This allows the screen 6 to be partially removed from the frame 1 at the magnetically fastened section, bend at the hinge means and be held to the frame 1 by the semi-permanently secured section.

It will be appreciated from the above description that measuring and fitting of a
35 screen 6 or a plurality of screens 6 can thus be done in one visit on site and the

screen 6 built on site, in situ. This leads to considerable advantage in the time taken to install screens 6 and thus reduces the cost.

It will be appreciated that the frame 1 does not need to be a regular rectangular shape and may be a door or other portal. Also, it will be appreciated that finishing
5 tape 5 may be of an aesthetically pleasing appearance.

Whilst the invention has been described with reference to a mesh screen 6, it will be appreciated that the method can be used for the manufacture of screens with other screen mesh; for example, sun screens, acrylic screens (heat reduction), and double glazing (noise and heat reduction), without departing from the scope
10 of the invention.

WHAT WE CLAIM IS:-

1. A method of constructing and installing a screen (6) with even tension, said method characterised in that it includes the steps of:

5 thoroughly cleaning and drying a frame (1) to which the screen (6) is to be fitted,

cutting frametape (2) to the required length,

fixing around the perimeter of the cleaned frame (1) the frametape (2) under uniform pressure, said frametape (2) being magnetised and applied with a pre-determined direction of polarity,

10 cutting screentape (3) to the required length,

applying magnetised screentape (3) with release tape to the frametape (2) with the magnetic polarity in a pre-determined direction,

cutting screen mesh (4) to roughly the size required for the screen (6),

removing release liner from the pre-adhesived screentape (3),

15 holding the screen mesh (4) over the frame (1) with light tension applied to the sides and pressing the edges to the exposed adhesive on the screentape (3) whilst maintaining said tension,

applying further tension to ensure the screen mesh (4) is firm and taut,

20 laying a non-metallic ruler on the screen mesh (4) and trimming off any surplus screen mesh (4) on all sides,

cutting pre-adhesived finishing tape (5) to overlap the screentape (3),

removing the release liner from the finishing tape (5) and pressing the finishing tape (5) onto the exposed screen mesh (4) and screentape (3),

applying pressure to the finishing tape (5) using a pressure tool, and

25 fixing corner pieces (7) to said screentape (3) at the corner.

2. A method of constructing and installing a screen (6) as claimed in claim 1, characterised in that said method further includes:

releasing the magnetic attraction between the screentape (3) and the
frametape (2) to remove the screen (6), and

inserting releasably securable retaining means between the screen (6)
and the frame (1); and

5 refitting the screen (6) to the frame (1).

3. A method of constructing and installing a screen (6) as claimed in claim 2
wherein said releasably securable retaining means allow partial displacement of
the screen (6).

10

4. A method of constructing and installing a screen (6) as claimed in claim 2
wherein said releasably securable retaining means is a re-sealable hook and loop
means.

15 5. A method of constructing and installing a screen (6) as claimed in any one
of the preceding claims wherein the screen mesh (4) is selected from the group:
acrylic screens, clear plastic, opaque plastic, translucent plastic, coloured plastic;
insect screen mesh; and a combination thereof.

20 6. A method of constructing and installing a screen (6) as claimed in any one
of the preceding claims wherein said screen (6) is constructed and installed in
situ.

7. A method of constructing and installing a screen (6) as claimed in any one
25 of the preceding claims wherein the pressure tool is selected from the group:

spatula, putty knife, ruler or other appropriate implement, manual means and a combination thereof.

8. A method of constructing and installing a screen (6) as claimed in any one
5 of the preceding claims wherein the corner pieces (7) are triangular and inset
under the finishing tape (5).

9. A method of constructing and installing a screen (6) as claimed in any one
of claims 1 to 7 wherein the corner pieces (7) are triangular and inset on top of
10 the finishing tape (5).

10. A method of constructing and installing a screen (6) as claimed in any one
of the preceding claims wherein the corner pieces (7) are of aesthetically pleasing
shape and appearance.

15

11. A method of constructing and installing a screen (6) as claimed in any
ones of the preceding claims wherein the frame (1) is selected from the group:
door frame, window frame, or frame surrounding any portal through an interior or
exterior wall.

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12. A method of constructing and installing a screen (6) as claimed in any one
of the preceding claims wherein the corner pieces (7) are a contrasting colour to
the finishing tape (5).

13. A screen (6) made by the method as claimed in any one of claims 1 to 12.

14. A method of constructing and installing a screen (6) as claimed in claims
1 to 12 and substantially as hereinbefore described and with reference to any one
5 of Figures 1 to 3 of the accompanying drawings.

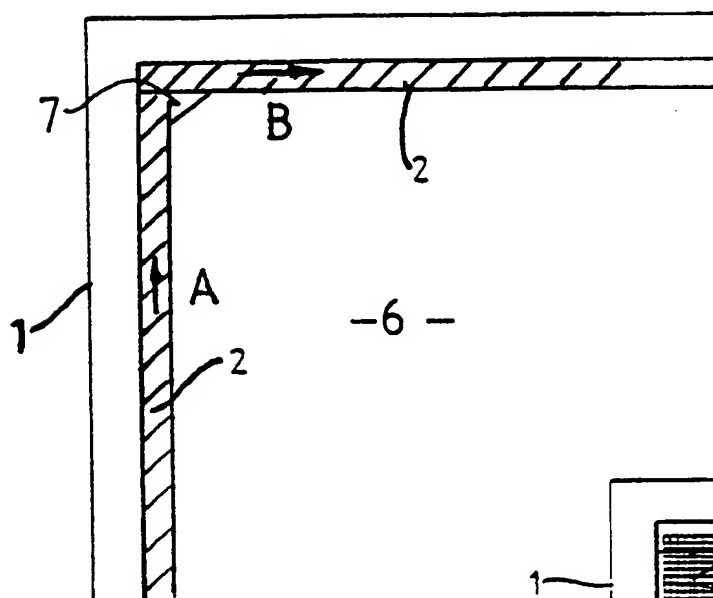


FIG. 1

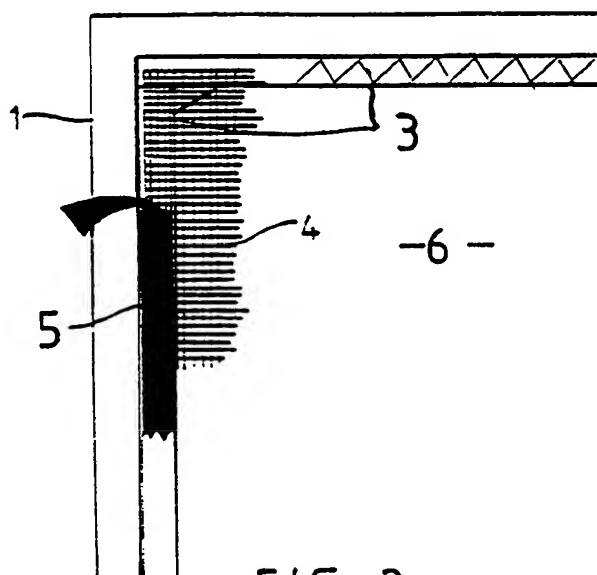


FIG. 2

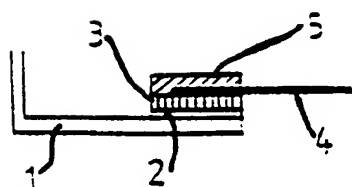


FIG. 3

INTERNATIONAL SEARCH REPORT

 International application No.
PCT/NZ 99/00035

A. CLASSIFICATION OF SUBJECT MATTER														
Int Cl ⁶ : E06B 9/24, 9/52														
According to International Patent Classification (IPC) or to both national classification and IPC														
B. FIELDS SEARCHED														
Minimum documentation searched (classification system followed by classification symbols) E06B 9/24, 9/52														
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched														
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPAT & JPAT														
C. DOCUMENTS CONSIDERED TO BE RELEVANT														
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.												
A	EP 110051 A (WILHELM TERLINDEN GESELLSCHAFT MIT BESCHRANKTER HALFTUNG) 13 June 1984 Whole document													
A	US 5090469 A (BOULANGER) 25 February 1992 Whole document													
A	AU 43754/89 A (ALEXANDER) 3 May 1990 Whole document													
<input type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex														
<table border="0"> <tr> <td>* Special categories of cited documents:</td> <td>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"E" earlier application or patent but published on or after the international filing date</td> <td>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"&" document member of the same patent family</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td></td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </table>			* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family	"O" document referring to an oral disclosure, use, exhibition or other means		"P" document published prior to the international filing date but later than the priority date claimed	
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Date of the actual completion of the international search 9 June 1999		Date of mailing of the international search report 11 JUN 1999												
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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/NZ 99/00035

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
EP	110051	ES	285022				
US	5090469	NONE					
AU	43745/89	NZ	226719				
END OF ANNEX							